



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,406	12/13/2001	Charles E. Wickersham JR.	TSO 190 P2	1167

33805 7590 02/04/2005

WEGMAN, HESSLER & VANDERBURG  
6055 ROCKSIDE WOODS BOULEVARD  
SUITE 200  
CLEVELAND, OH 44131

EXAMINER

ANDREWS, MELVYN J

ART UNIT	PAPER NUMBER
----------	--------------

1742

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/018,406	<b>Applicant(s)</b> WICKERSHAM ET AL.	
	<b>Examiner</b> Melvyn J. Andrews	<b>Art Unit</b> 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 November 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 and 18-36 is/are pending in the application.
- 4a) Of the above claim(s) 1-15, 18-24 and 29-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

Receipt is acknowledged of a request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e) and a submission, filed on November 23, 2004. The submission, however, is not fully responsive to the prior Office action because applicants cannot file an RCE to obtain continued examination on the basis of claims that are independent and distinct from the claims previously presented and examined as a right (i.e. applicants cannot switch inventions) .MPEP 706.07(h) VI (B).

Accordingly the newly submitted Claims 29 to 36 drawn to a method will be withdrawn from consideration and not entered MPEP 706.07(h) page 700-85, col.2, last two lines to page 700-86 col.1, line 13.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 25 to 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation "having inclusions of the size of between 100µm to 400 µm" is new matter since it does not appear in the specification and Fig 1 does not shown this range.

Claim 28 is indefinite because the expression "not within said sputter track area" is new matter. MPEP 2173.05(i).

***Claim Rejections - 35 USC § 103***

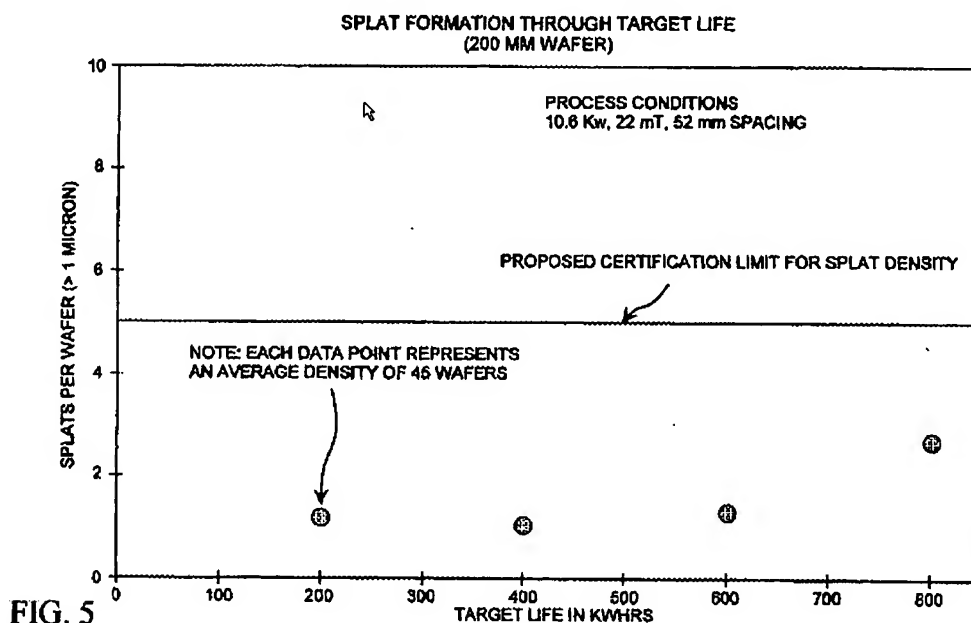
The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pavate et al (US 6,001,227). Claims 16, 17 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pavate et al (US 6,001,227). Pavate et al disclose a target having essentially no dielectric inclusions such as metal oxides ( $\text{Al}_2\text{O}_3$ ), nitride precipitates, carbide precipitates, of sizes larger than about 1 micron in concentrations greater than 5,000 such inclusions per gram of target material (col.12, lines 49 to 62) but does not explicitly disclose a target material being substantially free of inclusions of the size of "800 $\mu\text{m}$  and greater" or "400 $\mu\text{m}$  or greater" but the size of '227 inclusions being not "larger than about 1 micron" overlaps the claimed range therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the size range of inclusions the motivation being to avoid localized melting of the target which may splatter onto the wafer.

Pavate et al does not explicitly disclose "a sputter track area" as claimed but Pavate et al does disclose "Step 308" which refers to the initial burn-in of the target and its subsequent long-term use (col.12, lines 4 to 26) such burn-in will obviously result in "a sputter track area".

### ***Response to Arguments***

Applicant's arguments filed June 7, 2004 have been fully considered but they are not persuasive. Pavete et al discloses a sputter target as shown in FIG.5



and states that this particular target had the following characteristics : there were essentially no dielectric inclusions such as metal oxides ( $\text{Al}_2\text{O}_3$ ), nitride precipitates , carbide precipitates of sizes larger than about 1 micron (col.12, lines 49 to 62) therefore the Pavate et al target is substantially free of inclusions of the size "400  $\mu\text{m}$  or greater" or the size "800  $\mu\text{m}$  or greater" . Applicants apparently discovered that "inclusions with size greater than about 400  $\mu\text{m}$  are required to produce arcs of sufficient intensity to generate macroparticles" but this discovery does not require that the claimed sputter target contain inclusions of a specific size. The expression "substantially free" means that there are no inclusions of the size "400  $\mu\text{m}$  or greater" or the size "800  $\mu\text{m}$  or greater".

Applicants' arguments filed November 23, 2004 have been fully considered but they are not persuasive. Claim 27 as amended "having inclusions of the size of between 100  $\mu\text{m}$  to 400  $\mu\text{m}$  " is new matter which is not supported by the specification and Fig 1 as argued . Also in Claim 27 on line 3 the limitation "free substantially free of inclusions in said target material of the size of 800  $\mu\text{m}$  or greater " is inconsistent with the limitation on lines 6 and 7, "free of inclusions therein of the size of 400  $\mu\text{m}$  and greater" because the lower limit apparently may be both 400  $\mu\text{m}$  or 800  $\mu\text{m}$  this is inconsistent.

Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pavate et al as applied to claims 16 and 17 above, and further in view of Leroy et al (US 5,955,673). Pavate et al discloses that the target metal can be aluminum or an alloy thereof such as  $\text{Al}_x\text{Cu}_y\text{Si}_z$  (col.9, lines 27 to 30) but does not disclose a specific alloy example as claimed but Leroy et al discloses a sputtering target (for example,  $\text{Al} + 1\% \text{ Si} + 0.5\% \text{ Cu}$ ) (col.3, lines 13 to 21) it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the Leroy et al aluminum alloy as the alloy in the Pavate et al method sputtering is used in both cases.

Claims 25 to 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese patent No.09-023364. The Japanese patent discloses a high purity Al alloy sputtering target having inclusions of at least 10  $\mu\text{m}$  in mean size to be present at the sputtering surface (WPIDS Abstract) which overlaps the claimed range .

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvyn J. Andrews whose telephone number is (571)272-1239. The examiner can normally be reached on 8:00A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V King can be reached on (571)272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**MELVYN ANDREWS**  
**PRIMARY EXAMINER**

MJA  
February 5, 2005